



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Tsuyoshi MAEDA

Group Art Unit: 2871

Application No.: 10/690,607

Examiner: A. SCHECHTER

Filed: October 23, 2003

Docket No.: 117304

For: TRANSFLECTIVE LIQUID CRYSTAL DISPLAY HAVING BIAXIAL RETARDER
(AS AMENDED)

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

After entry of the Notice of Appeal filed herewith, Applicants request review of the final rejection mailed August 10, 2006 in the above-identified application.

I. Status of Pending Claims

Claims 1, 2, 7, 15, 18, 21-23, 29-31, and 34-41 are pending in this application.

Claims 1, 2, 7, 15, 18, 21-23, 29-31, and 34-41 are rejected. No amendments are being filed with this request.

II. Grounds of Rejection Presented For Review

The Office Action rejects claims 1, 2, 7, 15, 18, 21-23, 29, 30, and 34-41 under 35 U.S.C. §103(a) over U.S. Patent No. 6,753,939 to Jisaki et al. ("Jisaki") in view of U.S. Patent Application Publication No. 2002/0071070 to Yano et al. ("Yano") and U.S. Patent No. 6,201,592 to Terashita et al. ("Terashita"); and rejects claims 1, 2, 22, 29-31, and 37

under 35 U.S.C. §103(a) as unpatentable over U.S. Patent Application Publication No. 2001/0055082 to Kubo et al. ("Kubo") in view of Jisaki, Yano, and Terashita.

The Office Action concedes that Jisaki does not disclose a sum $W1$ that satisfies $0.5 \times Rt \leq W1 \leq 0.75 \times Rt$, and that $nx1 > ny1 > nz1$ and $nx2 > ny2 > nz2$. *See* Office Action, page 4, lines 13–15. The Office Action maintains its position that Yano in view of Terashita cures the deficiency, despite Applicants' arguments that there lacks motivation to combine the Jisaki, Yano, and Terashita references. *See* Amendment, filed May 3, 2006, page 11, line 15 to page 12, line 10.

In response to the May 3, 2006 Amendment, the Office Action asserts that the only teaching from Yano that is applied is the thickness of the retardation plates. Applicants maintain that because the "optical device" in Yano is incapable of converting linear polarized light to circular polarized light, one skilled in the art would not assume that such a range would be appropriate for use in the retardation plate of Jisaki.

The Office Action asserts that Yano's thickness range is appropriate to apply to Jisaki. The Office Action speculates that if " $ny1 \approx nz1 \approx 0$ (making the biaxiality small)" and $d1 \times nx1 \approx \lambda/4$, then the recited inequalities [required by the claims] would be met. (See Office Action, page 2, bottom 7 lines.) However, Jisaki, Yano, and Terashita do not disclose any such values for $nx1$, $ny1$, and $nz1$. This is pure speculation without support.

Furthermore, the relationship $ny1 \approx nz1 \approx 0$ is a physical impossibility. The symbols $ny1$ and $nz1$ represent indices of refraction. An index of refraction of a material is the factor by which the phase velocity of electromagnetic radiation is slowed in the material relative to its velocity in a vacuum. The index of refraction in a vacuum is 1, and is only less than 1 at certain frequencies (e.g., near absorption resonances for x-rays); it is never 0.

Additionally, a material has biaxiality when the indices of refraction are different in all three axes, or in other word $nx \neq ny \neq nz$. Therefore, "simplifying matters by setting

$n_x \approx n_y \approx n_z$ ignores the requirement of biaxiality. Also, the equation " $d \times n_x$ " (see Office Action, page 2, line 19) defines the optical length of an optical element, not retardation of n_x and n_y to achieve a phase shift; two indices of refraction are required to determine a phase shift due to retardation, i.e., $(n_x - n_y)d = \lambda/4$. Accordingly, for the reasons discussed above, the Office Action's assertion that "the recited inequalities in the claims would be met" by modifying Jisaki according to the teachings of Yano is pure speculation with no factual basis.

The Office Action concedes that Yano "teaches this range in the context of retardation films which satisfy $n_x \approx n_y > n_z$ rather than $n_x > n_y > n_z$." See Office Action, page 5, lines 3–4. The Office Action then asserts that Terashita provides evidence of an "art-recognized equivalent for retardation films to have either $n_x \approx n_y > n_z$ or $n_x > n_y > n_z$, with either providing compensation for the viewing angle dependency problem." See Office Action, page 5, lines 6–8.

Yano explicitly requires $n_x \approx n_y$ to eliminate optical rotary dispersion. This is the whole purpose of Yano. Thus, when combining Terashita with Yano, the option of $n_x \approx n_y$ disclosed in Terashita must be selected instead of $n_x > n_y$ because Yano makes such a requirement. Accordingly, when modifying Jisaki with Yano and Terashita, Yano's $n_x \approx n_y$ remains intact, and Jisaki in view of Yano and Terashita would not meet the $n_x > n_y$ requirement recited in independent claim 1.

If $n_x > n_y$ is forced onto Yano as the Office Action asserts may be done because of Terashita's alleged "art-recognized equivalent," then Yano would not operate for its intended purpose (see MPEP §2143.01 V) because Yano must be considered in its entirety (see MPEP §2141.03 VI). As noted above, the whole purpose of Yano is to eliminate optical rotary dispersion, which requires $n_x \approx n_y$. As asserted in the May 3, 2006 Amendment, $n_x \approx n_y$ would not achieve the circular polarization as recited in the independent claims. Accordingly, while the thickness ranges disclosed in Yano at paragraph [0028] may appear to satisfy the

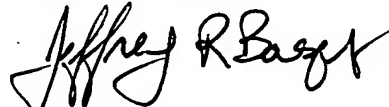
recited inequalities, these ranges are for non-circularly polarized light. Yano provides no teaching or suggestion that these ranges are appropriate for circularly polarized light ($n_x > n_y > n_z$). Although Terashita discloses that either $n_x \approx n_y > n_z$ or $n_x > n_y > n_z$ may be used to compensate for viewing angle characteristics, this does not teach or suggest that the two different types of retardation plates provide the same exact compensation for a given thickness and/or values for n_x , n_y , and n_z , or that they are in any way interchangeable.

III. Conclusion

For all of the reasons discussed above, it is respectfully submitted that the obviousness rejections are in error and that all the pending claims are in condition for allowance.

Applicants respectfully request the panel of Examiners to allow this application.

Respectfully submitted,



James A. Oliff

Registration No. 27,075

Jeffrey R. Bousquet

Registration No. 57,771

JAO:JRB/hs

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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